

TECHNOLOGICAL TRANSFORMATION AND CHANGING SPORTS

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ABSTRACT

Sport is part and parcel of any human society from the ancient times. It was show of their physical strength and mental abilities in those days. Industrialization has made changes in the attitude of people over the sports and in the sports itself. The increased leisure time brought the citizens of developed and developing countries to attend and follow spectator sports, greater participation in athletic activities and increased accessibility. These trends continued with the advent of mass media and advancement of global communication technologies. The application of technological advancement in sports is gradually changing the nature of sports itself.

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INTRODUCTION

“Sports is not a matter of life and death. It is much more important than that” said Bill Shankly. This comment emphasizes that many aspects of our social being cannot be fulfilled in private life. A game is the formal system based on certain rules that give you no information about the world and you verify questions by referring itself.

A sport is an organized, competitive, entertaining and skillful activity requiring commitment, strategy and fair play in which a winner can be defined by objective means. It is governed by a set of rules or customs.

The oldest definition of sport in English is of anything humans find amusing or entertaining.^[1] Roget has defined the noun sport as an “Activity engaged in for relaxation and amusement”.^[2] From the Etymological sources it is understood that the word “Sport” comes from the old French disport meaning “leisure”.^[3] American English uses the term “Sports” to refer to the general type of recreational activity whereas other regional dialects use the singular “sport”.^[4] The Persian word for “sport” is based on the root bord with the meaning “winning”. The Chinese term for “sport” is tiyu which means “physical training”.^[5] The Modern Greek term for sport is athlitismos, similar with the English terms “athlete” and “athleticism”.^[6]

There are artifacts and structures that suggest that the Chinese engaged in sporting activities as early as 4000 B.C.E. Gymnastics appears to have been popular sport in China's ancient past. It is known from the monuments to the Pharaohs that a number of sports, including swimming and fishing were well developed and regulated several thousands of years ago in ancient Egypt. Javelin throwing, high jump and wrestling were the other sports belonged to Egypt of ancient times.^[7] Ancient Persian sports such as the traditional Iranian martial art of Zourkhaeh had a close connection to the warfare skills. Polo and jousting were also originated from ancient Persia.^[8]

As wide range of sports already established by the time of Ancient Greece, Sports became a prominent part of the culture of Greeks and they created the Olympic Games which in ancient times were held every four years in a small village in the Peloponnesus called Olympia.^[9]

Sports have been increasingly organized and regulated from the time of the Ancient Olympics up to the present century. Most of the sports are contested between national teams which encourage the use of sporting events for nationalist purposes whether intentionally or not. The signaling of national solidarity through sport is one of the primary forms of banal nationalism.

Sports provide a venue for symbolic competition between nations. It also served as a tool of diplomacy. Though the fundamental ethos of the sports is being carried out for its own sake and for the enjoyment of its participants, the involvement has been true throughout the history of sports and also the involvement of political goals in sports is seen by some quarters.

Several sporting events are a matter of national pride. The Ashes [in cricket] is matter of national pride between England and Australia.^[10] India Vs Pakistan match puts both countries on a virtual standstill as it is all about pride during those matches.

The Olympic Games are the premier stage for nationalist competition, and its history reflects the history of political conflict since its inception at the end of the 19th century. The 1936 Summer Olympics held in Berlin was an illustration, may be best acknowledged in hindsight, where an ideology was developing which used the event to strengthen its spread through propaganda. The boycott by the United States and politically aligned nations of the 1980 Summer Olympics and the Soviet Union of the 1984 Summer Olympics were part of the Cold War conflict.^[11]

In the 1970s an exchange of table tennis players from the United States and the People's Republic of China led to a thaw in Sino-American relations that eventually led to U.S. President Richard Nixon's rapprochement with China.

When apartheid was the official policy in South Africa, many sports people adopted the conscientious approach that they should not appear in competitive sports there. This was one of the effective contributions to the eventual demolition of the policy of apartheid. Many African nations boycotted the 1976 Summer Olympics in Montreal, as a result of then New Zealand Prime Minister Robert Muldoon allowing the All Blacks to tour South Africa. The issue would later come to a head during the 1981 Springbok Tour.^[12]

Industrialization has brought increased leisure time to the citizens of developed and developing countries, leading to more time for the people to attend and follow spectator sports, greater participation in athletic activities and increased accessibility. These trends continued with the advent of mass media and advancement of global communication technologies.

Similarly, there are other activities that have elements of sport and art in their execution such as body building, free running, martial arts, professional wrestling, performance art, Yoga, dressage, and culinary arts. The best example is bull fighting which in Spain is reported in the arts pages of newspapers.

All sports involve physical and mental activities that are pursued for more than simply utilitarian reasons. For instance, the running, when done as a sport occurs for reasons beyond simply moving from one place to another. Value is gained from this activity when it is conducted simply for its own sake. This is similar to the concept of aesthetic value, which is seeing something over and above the strictly functional value coming from an object's normal use. For instance, an aesthetically pleasing car is one which doesn't just get from A to B, but which impresses with its grace, poise and charisma. In the same way, sporting performance such as jumping doesn't just impress as being an effective way to avoid obstacles. It impresses because of the ability, skill and style that is demonstrated in its performance.

Art and sports were clearly linked at the time of Ancient Greece, when gymnastics and calisthenics invoked admiration and aesthetic appreciation for the physical build, prowess and 'arete' displayed by participants. The modern term 'art' as skill, is related to this ancient Greek term 'arete'.^[13] The closeness of art and sport in these times was revealed by the nature of the Olympic Games, which were celebrations of both sporting and artistic achievements, poetry, sculpture and architectures.

The aspect of sports, together with the increase of mass media and leisure time, has had to professionalism in sports.

This has resulted in some change where paychecks are more important than recreational aspects or where the sports are changed simply to make them more profitable and popular. The entertainment aspect also means that sportsmen and women are often elevated to celebrity status in media and popular culture.

TECHNOLOGY TRANSFORMATION

Technology has an important role in sports whether applied to an athlete's health, the athlete's technique or equipment's characteristics.

[1] Equipment – As sports has grown more competitive, the need for better equipment has arisen. Golf clubs, bicycles, American football helmets, tennis racquets, baseball and cricket bats, Football (Association Football), hockey skates, and other equipment have all seen considerable changes when new technologies have been applied.

[2] Health – Ranging from nutrition to the treatment of injuries, as the knowledge of the human body has deepened over time, an athlete's Potential has been increased. Athletes are now able to play to an older age, recover more quickly from injuries, and train more effectively than previous generations of athletes.

[3] Instruction – Advancing technology created new opportunities for research into sports. It is now possible to analyse aspects of sports that were previously out of the reach of comprehension. Being able to use motion capture an athlete's movement, or advanced computer simulations to model physical scenarios has greatly increased an athlete's ability to understand what they are doing and how they can improve themselves.

Traditionally athletes are supported primarily by their coach. In the early '70s though Australia set-up the Australian Institute of Sport and many state based Institute of Sport and many state based institutes were also formed. These institutions brought together a wide range of expertise to support athletes in a more programmed and scientific way. Today standing behind many athletes are teams of experts from a range of sporting and scientific disciplines. A biochemist, sport psychologists, careers planner, dietician, strengthening and conditioning coach and sports scientists. More recently technological innovation has assisted these endeavours further. Training camps for young, developmental or elite athletes can bring together all of these specialists for intense periods of training and education. Athlete's benefit by having complete assessment combined with expert training and care.

Treadmills, swimming flumes, cycling and rowing machines replace the usual athletic environment allowing athletes to remain in near stationary condition so that they can be more easily assessed Ventilators can be used to monitor lung function and consumption of oxygen. High-speed video cameras look at the footfalls and gait characteristics of a running athlete.

However by taking advantage of advancements in microelectronics and other micro technologies it is possible to build instrumentation that is small enough to be modest for a number of sporting and clinical applications. Pedometers, heart rate monitors and trip computers for bicycles today are common place and represent some of the earliest technological innovations popular with elite and recreation athlete alike.

A runner, swimmer or rower wearing these devices can have examined in detail their performance on the track or even on race day itself.

High precision GPS, or Global Positioning Systems now have accuracy better than 10 cm and can be used to monitor runners, skiers, football players and rowing sculls position and even velocity, Micro needles, a fraction of the size of a human hair in width and penetrating into the layers of the skin offer the potential to monitor fatigue and energy levels by measuring blood glucose and lactate levels through removable patches. As always technological development is often undertaken in specialized areas before being made available to consumers.

The following are the very important Technologies used in major sports events like foot ball and Cricket.

SOCCER GOAL TECHNOLOGY

There has been a need for goal line technology in soccer, particularly as TV replays are showing in retrospect wrong decisions by the referee.

A promising prospect has been a "smart ball" loaded with a computer chip, jointly developed by German companies Cairos Technologies and the Fraunhofer Institute for Integrated Circuits, and engineering research and software Development Company, along with the Adidas athletic clothing and Shoe Company. The companies' technology uses a network of receivers around the field designed to track the ball's precise position in real time – including exactly when it has fully passed the goal line. That information would be relayed in less than a second to a watch-like device worn by referee. However, this system has had its setbacks, and another system using, the Hawk-eye, is being looked at.^[14]

HAWK – EYE TECHNOLOGY

Hawk-eye is the name of a computer and camera system which traces a ball's trajectory. It is being used in international cricket and tennis, and many other sports are also looking at making use of this technology. The system is also being trailed in soccer. The Premier League of Foot ball in the UK has agreed to the introduction of goal-line sensors after being given approval by football's rule-makers. The system was invented by a young British computer expert, Paul Hawkins and was launched in 2001. Hawk-Eye would give a definitive decision on whether the ball had crossed the line. The Hawk Eye uses a camera taking 600 frames a second on the goal-line. The information is analyzed by computer and sent to the referee's headset or a device on his wrist.^{[15][16]}

COMPUTER SOFTWARE

There are numerous software packages that are designed for fitness and nutrition professionals to organize data and produce reports, ideal for visitors to this site. Here are a couple of packages that come recommended by Topend Sports.

- Team Beep Test – the most versatile and useful software for conducting and recording results of the bleep / beep test, with results recorded directly onto your computer.^[17]
- Body Byte – a universal standalone computer software program specially developed to comprehensively organize and manage all the information associated with nutrition, training and fitness.

Cricket, has evolved and changed a lot since it was first played professionally in the 1880's. The game has gained immense popularity all over the world and has become one of the biggest sports which are played on this planet. Different forms of this game has emerged over the years like one day cricket and twenty 20 cricket. As the game has evolved, so has the technology. Technological changes has greatly affected the way this game is played and watched, today's cricket has become more accurate and fast paced due to the invasion of technology.

NO WAITING FOR RESULT NOW

Earlier people had to wait one day to read the results of last day's match in the newspaper and then came the radio on which many people listened to the commentary from one transistor. And then came the breakthrough technology, television, here also people had to wait for days to watch the broadcast of one match, until live transmission of cricket matches began. Now people could watch their favorite game as it was happening at the stadium, loud and clear. Nowadays, action replays of batsman's shot, bowler's action and his delivery and a good catch are shown so that viewers can relish amazing moments from a match again and again and again. Archives of recorded matches are stored, so that they can be played in the future.

NEW MONITORING MACHINES

Newer and more accurate camera techniques have enabled third umpires to give correct decisions about a stroke or a dismissal. A new technology called a red zone is

inflicted between the wickets to determine where the ball touched, and in which direction did it go after being hit by a bats man. Even the recordings being used by the third umpire to monitor the stroke are displayed to the viewers so that they can see for themselves that the decision taken is correct. Now umpires can also consult the third umpire on any decision of which they are unsure by contacting him via a walky talky, for e.g. an air ball which landed near the boundary line, to know whether it's a six or a four.

SINCKOMETER

Another useful equipment is the Snick meter,^[18] which can tell whether a ball hit the bat of the batsman before it went into the wicket keeper's gloves. It functions with the help of a computer and high speed cameras, which help in tracking the movement of the ball before and after hitting the bat. Slow motion camera techniques are also used widely. All these techniques have helped umpires to take better decisions; matches have been won and lost due to these techniques.

BETTA - BATTA

Innovations have also been made in the making of bats. A bat designed by Dr. Richard Stretch of the University Of Port Elizabeth, called the 'betta batta' has been specially designed so that it can transmit signals to determine where the ball hit the bat ^[19]. Similarly soft wares have been developed to analyze player performances, fielding placements, bowling actions etc., Technology has wide implications on today's cricket. But leaving that aside, due to use of technology, one thing is for sure that gentleman's game is not gentle anymore.

ULTRA LITE CRICKET LEG GUARDS

People often want a pair of leg guards for playing cricket and especially of the type worn by Sachin Tendulkar, Sehwag ,Yuvraj, Mahinder Singh Dhoni and Harbhajan Singh or other famous batsman of different countries. These leg guards are very different in shape and style in comparison to the old hand stitched bulky leg guards. The new Ultralite leg guards are very light in weight and the batsman feels great comfort in these pads while running. Moreover the ultra-lite leg guards are having shock absorber tendency which provides full proof safety to batsman against the impact of the ball. All over the world this new technique in laggards gained appreciation.

HEAD GEAR FOR CRICKET

Headgear or helmet is very important for cricketer. It is used to safeguard all possible damages while playing any sort of game. The significance of headgear is to manage the whole show without taking the risk of damaging your head. Good and comfortable fit, synchronizing with cricketer head, BSI pass headgear is today's call. They are made by polypropylene shall cover with high class fabric with good ventilation systems these parameters are set internationally for a quality headgear and the cricketers select the helmet of good companies like Albion, S. G, Gun and More, Dunken Frinley and many more.

INNOVATIVE FACE GUARDS

The unparalleled face grill is made from Titanium wire for weight reduction and improved strength. The design has been refined to follow the contours of the jaw line, reducing the overall size thus allowing for greater head movement, improving player posture and line of sight.

CONCLUSION

Technology has brought about a significant change in the world of sports. Though originally the use of technology had its share of detractors, their argument being technology slowing down the speed of the game, no one can deny that the right of a sports team or a sportsperson's right to a fair game devoid of incorrect decisions. Technology has done away with all the squabbles regarding match decisions.

In the earlier days, whatever decision was made by the match officials was considered the last word. Though efforts had been made by all the great sports governing bodies of the world to do away with bias, yet the element of human error still remained, and will continue to exist. What technology strives to do is to remove the element of human error in the course of a match being played. Today, in the world of sports, technology has become a part and parcel of the entire event. Other than in the area of broadcasting and televising a sporting event, technology also plays an extremely important part in the game play.

In soccer matches, the problems which have plagued the game, since the beginning, are slowly being eliminated. Instant replays can be used by referees to decide about goal line conflicts, penalty decisions, off-sides, handball and other crucial decisions. Future prospects include a football with a microchip embedded in it, which can track whether the ball has crossed the goal line or not.

Hawk-Eye is a revolutionary technology which can provide a computer generated image of the ball movement using sensors placed in the playing field. This technology has been recently included in the game of tennis, in the form of a referral system and has made a huge impact on the game. This has led to the adoption of this technology in cricket.

Sport technology has to be seen from the holistic, as well as inter- and trans-disciplinary point of view. Product development requires close collaboration between engineers, athletes, sports scientists, and business managers. It requires an in-depth understanding of engineering disciplines, life and sport sciences, as well as economics. The Impact of Technology on Sport has in its core precisely this philosophy and approach.

In my opinion, technological advancements in equipments have improved every game that is played today. However, there are some instances where it has gone to far and discourages hard work and encourages reliance on the equipment that can give them an advantage over obviously superior athletes.

Anyhow, the wedding of sports and technology has indeed proved to be fruitful. The reliance of sports on technology is here to stay.

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